



## Applications of monsoon research: Opportunities to inform decision making and reduce regional vulnerability

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### Abstract:

This article presents ongoing efforts to understand interactions between the North American monsoon and society in order to develop applications for monsoon research in a highly complex, multicultural, and binational region. The North American monsoon is an annual precipitation regime that begins in early June in Mexico and progresses northward to the southwestern United States. The region includes stakeholders in large urban complexes, productive agricultural areas, and sparsely populated arid and semiarid ecosystems. The political, cultural, and socioeconomic divisions between the United States and Mexico create a broad range of sensitivities to climate variability as well as capacities to use forecasts and other information to cope with climate. This paper highlights methodologies to link climate science with society and to analyze opportunities for monsoon science to benefit society in four sectors: natural hazards management, agriculture, public health, and water management. A list of stakeholder needs and a calendar of decisions is synthesized to help scientists link user needs to potential forecasts and products. To ensure usability of forecasts and other research products, iterative scientist-stakeholder interactions, through integrated assessments, are recommended. These knowledge-exchange interactions can improve the capacity for stakeholders to use forecasts thoughtfully and inform the development of research, and for the research community to obtain feedback on climate-related products and receive insights to guide research direction. It is expected that integrated assessments can capitalize on the opportunities for monsoon science to inform decision making and, in the best instances, reduce regional climate vulnerabilities and enhance regional sustainability.

**Source:** <http://journals.ametsoc.org/doi/pdf/10.1175/JCLI4098.1>

### Resource Description

#### Communication:

resource focus on research or methods on how to communicate or frame issues on climate change;  
surveys of attitudes, knowledge, beliefs about climate change

A focus of content

#### Communication Audience:

audience to whom the resource is directed

Researcher

## **Other Communication Audience:** Stakeholders

## **Early Warning System:**

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

## **Exposure :**

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Food/Water Security, Food/Water Security

**Extreme Weather Event:** Drought, Flooding, Wildfires

**Food/Water Security:** Agricultural Productivity

## **Geographic Feature:**

resource focuses on specific type of geography

Rural, Urban

## **Geographic Location:**

resource focuses on specific location

Non-United States, United States

**Non-United States:** Non-U.S. North America

## **Health Impact:**

specification of health effect or disease related to climate change exposure

General Health Impact

## **Intervention:**

strategy to prepare for or reduce the impact of climate change on health

A focus of content

## **Mitigation/Adaptation:**

mitigation or adaptation strategy is a focus of resource

Adaptation

## **Model/Methodology:**

type of model used or methodology development is a focus of resource

Exposure Change Prediction

**Population of Concern:** A focus of content

## **Population of Concern:**

populations at particular risk or vulnerability to climate change impacts

# Climate Change and Human Health Literature Portal

Low Socioeconomic Status, Workers

## **Resource Type:**

format or standard characteristic of resource

Review

## **Resilience:**

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

## **Timescale:**

time period studied

Short-Term (

## **Vulnerability/Impact Assessment:**

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content